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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,549	04/25/2001	Richard L. Baer	10003419	7608

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

QUIETT, CARRAMAH J

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,549

Applicant(s)

BAER, RICHARD L.

Examiner

Carramah J. Quiett

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 25 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 02/22/2005, have been entered and made of record. Claims 1-12 are pending.

Response to Arguments

2. Applicant's arguments filed 02/22/2005 have been fully considered but they are not persuasive.

With respect to the Bell et al. (U.S. Pat. #6,486,915) reference, the Applicant argues that:

- a. Bell does not determine a selected exposure in response to the number of clipped pixels contained in photographs obtained using each of a set of possible exposures as claimed in amended claim 1. Bell uses the number of clipped pixels in a photograph to adjust the size of the sample window and not to determine a selected exposure as claimed in claim 1.
- b. The dynamic aim mean disclosed by Bell does not anticipate the number of clipped pixels in obtaining photographs in amended claim 1. Instead, the dynamic aim mean of Bell is determined by obtaining a set of dark frames by closing the camera shutter. Clearly, pixel data obtained with a closed shutter are not clipped pixels as claimed in amended claim 1.
- c. The dynamic aim mean of Bell is not used to select an exposure setting, as are the numbers of clipped pixels of amended claim 1. Instead, the dynamic aim mean of Bell is used to switch between coarse and fine granularities during an automated search methodology.

The Examiner respectfully disagrees. In fig. 2, Bell illustrates the method for obtaining optimal exposure in reference to the lookup table for each exposure setting (fig. 3). When the histogram data is centered out (see fig. 4), the pixels are clipped, which changes the size of the sample window to ultimately determine a selected exposure. Additionally, the pixels are clipped to "center in" thereby choosing possible exposures (see fig. 5). The numbers of clipped pixels are higher if the exposure is increased (see fig. 6). For further explanation, please read col. 5, lines 3-42; col. 5, line 66-col. 6 line 11; col. 6 line 57-col. 7 line 57; col. 7, lines 58-col. 8, line 1. Also, please see figs. 2-6.

As far as the dynamic aim mean is concerned, it is a value used as a factor for determining the final exposure, which is not over or underexposed. In col. 7 line 58 – col. 8, line 1, Bell teaches that, "an aim mean that is compared to a histogram mean to help determine when the search methodology should switch from coarse granularity to fine granularity and also when the captured scene is over or underexposed. In a particular embodiment of the invention, the aim mean is replaced with a "dynamic" aim mean that is computed as a function of each exposure setting. A dynamic aim mean as defined here is a noise-dependent variable that is computed for each captured scene, based on the current exposure setting." Bell mentions the type of granularity to merely point out a useful method for finding the final exposure (col. 7, lines 44-42). Bell further explains that the dynamic aim mean (noise variable) as a function of different exposure parameter variables are determined (col. 8, lines 17-28). Figures 8 and 9 illustrate an example of a set of exposures for a dark shot (with the shutter closed) (col. 8, lines 28-41). However, fig. 7 shows different types of noise that are captured in a conventional digital camera (col. 8, lines 1-16). Photon shot and dark shot are two types of noise illustrated in the pixel

"bucket" (fig. 7). Therefore, photon shot data can also be represented in the mathematical relationship noise vs. pixel integration time (col. 8, lines 50-51). Also, please read col. 9, lines 1-19.

Claims 2-4 depend on amended claim 1. Therefore, claims 2-4 are anticipated by Bell.

Claim 5 is anticipated by Bell and includes limitations similar to the limitations of amended claim 1. Therefore, the response stated above with respect to amended claim 1 also applies to claim 5.

Claims 6-8 depend on claim 5. Therefore, claims 6-8 are anticipated by Bell.

Further, with respect to the Bell et al. (U.S. Pat. #6,486,915) reference, Applicant argues that claim 9 is not anticipated by Bell. The Applicant argues that Bell does not have an image processor that determines a selected exposure based on the number of clipped pixels obtained for each possible exposure. The Examiner respectfully disagrees. Bell illustrates (in fig. 1) an image processor (processors 116-124, A/D 120, image buffer 126 and exposure control 128) determines a number of clipped pixels in each photograph (Figs. 4-6, col. 1 lines 61-65; col. 4 line 48 - col. 5 line 65). The exposure control of Bell's image processor, as illustrated in fig. 2, obtains optimal exposure in reference to the lookup table for each exposure setting (fig. 3). When the histogram data is centered out (see fig. 4), the pixels are clipped, which changes the size of the sample window to ultimately determine a selected exposure. Additionally, the pixels are clipped to "center in" thereby choosing possible exposures (see fig. 5). The numbers of clipped pixels are higher if the exposure is increased (see fig. 6). For further explanation, please read col. 5, lines 3-42; col. 5, line 66-col. 6 line 11; col. 6 line 57-col. 7 line 57; col. 7, lines 58-col. 8, line 1. Also, please see figs. 2-6.

Claims 10-12 depend on claim 9. Therefore, claims 10-12 are anticipated by Bell.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. **Claims 1-12** are rejected under 35 U.S.C. 102(c) as being anticipated by Bell et al. (US #6,486,915).

Claims 5-8 will be discussed first.

Regarding **claim 5**, Bell '915 teaches an apparatus for exposure control, comprising:
means for obtaining a photograph of an image scene for each of a set of possible exposures (see Figs. 1 and 3; col. 2 lines 47-55; col. 3 lines 8-15, 49-63; col. 7, lines 58 – col. 8, line 1);
means for determining a number of clipped pixels in each photograph (figs. 4-6; col. 1, lines 61-65; col. 4 line 48 - col. 5, line 65);
means for determining a selected exposure from the possible exposures in response to the numbers of clipped pixels such that the photographs obtained using the possible exposures higher than the selected exposure have an increased value for the number (col. 5, lines 3-42; col. 5, line 66-col. 6 line 11; col. 6 line 57-col. 7 line 57; col. 7, lines 58–col. 8, line 1; figs. 2-6 and 8-9), and the photographs obtained using the possible exposures less than the selected exposure do not have a substantially lower value for the number (col. 5 lines 43-65, col. 6 lines 12-20', col. 6 line 57 - col. 7 line 57).

As to **claim 6**, Bell teaches that the means for determining a number of clipped pixels comprises means for measuring an amplitude of each of a set of pixels in the corresponding

photograph (col. 3 lines 49-63; col. 5 lines 3-22; col. 4 line 48 - col. 5 line 10); means for generating a histogram of a number of the pixels from the corresponding photograph verses the corresponding amplitude (Figs. 4-6., col. 5 line 10 - col. 6 line 57, col. 7 lines 12-57); means for detecting a jump in the number of pixels at a high pixel amplitude (Figs. 4-6; col. 5 lines 15-22; col. 6 lines 11-20; col. 7 lines 38-57).

As to **claim 7**, Bell teaches the means for determining a number of clipped pixels comprises means for setting a starting exposure and determining the number of clipped pixels from the corresponding photograph for the starting exposure (col. 1 line 66 - col. 2 line 4); means for setting a series of increased exposures and determining the number of clipped pixels from the corresponding photographs for the increased exposures (col. 1 line 57 - col. 2 line 12; col. 6 lines 11-56); means for setting a series of decreased exposures and determining the number of clipped pixels from the corresponding photographs for the decreased exposures (col. 6 lines 57 - col. 7 line 52).

As to **claim 8**, Bell teaches the means for determining a selected exposure comprises means for determining a subset of the possible exposures for which the number is relatively unchanged (col. 6 lines 11-56); and means for determining a first one of the possible exposures higher than the subset for which the number increases (col. 6 line 45 - col. 8 line 26).

Regarding **claims 1-4**, these claims are method claims corresponding to apparatus claims 5-8, respectively. Therefore, claims 1-4 are analyzed and rejected as previously discussed with respect to claims 5-8.

Regarding **claim 9**, Bell teaches a digital camera (see Fig. 1), comprising:
image sensor (photo cells 1287);

exposure mechanism that provides a set of possible exposures to the image sensor from an image scene (automatic exposure control 128);

image processor (processors 116-124, A/D 120, image buffer 126 and exposure control 128) that obtains a photograph of an image scene for each of a set of possible exposures (see Figs. 1 and 3, col.2, lines 47-55; col. 3, lines 8-15, 49-63), and determines a number of clipped pixels in each photograph (Figs. 4-6, col. 1 lines 61-65; col. 4 line 48 - col. 5 line 65), and determines a selected exposure from the possible exposures such that the photographs obtained using the possible exposures higher than the selected exposure have an increased value for the number (col. 5 lines 3-42; col. 5 line 66 - col. 6 line 11; col. 6 line 57 - col. 7 line 57), and the photographs obtained using the possible exposures less than the selected exposure do not have a substantially lower value for the number (col. 5 lines 43-65; col. 6 lines 12-20; col. 6 line 57 - col. 7 line 57).

Regarding **claims 10-12**, these claims correspond to apparatus claims 6-8, respectively. Therefore, claims 10-12 are analyzed and rejected as previously discussed with respect to claims 6-8.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571) 272-7316. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.J.Q.
July 19, 2005



NGOC-YEN VU
PRIMARY EXAMINER